agent that promotes demethylation of nucleic acids, a second agent that inhibits the deacetylation of histone proteins, and a third agent that promotes the arrest of cells in metaphase, wherein the adult somatic cell, subsequent to treating with the first agent, the second agent and the third agent, is a pluripotent stem cell which expresses a telomerase gene product.

C1 Ont

3. (Amended) The method of claim 1 wherein the first agent is 5-aza-2'-deoxycytidine.

C2

4.(Amended) The method of claim 1 comprising treating said adult somatic cell with 5-aza-2'-deoxycytidine, trichostatin A and Tat-cyclin B.

21. (New) The method of claim 1 wherein the second agent is trichostatin A.

22. (New) The method of claim 1 wherein the third agent is Tat-cyclin B.

23. (New) A method of producing a reprogrammed keratinocyte comprising treating a keratinocyte in vitro with a first agent that promotes demethylation of nucleic acids, a second agent that inhibits deacetylation of histones and a third agent that promotes the arrest of mammalian cells in metaphase; wherein the reprogrammed keratinocyte expresses a telomerase gene product and is capable of expressing a gene product selected from the group consisting of neurofilament, cardiac actin and alpha-antitrypsin.

C3

24. (New) The method of claim 23 wherein the first agent is 5-aza-2' deoxycytidine.

25. (New) The method of claim 23 wherein the second agent is selected from the group consisting of trichostatin A and sodium butyrate.

26. (New) The method of claim 25 wherein the second agent is trichostatin A.

27. (New) The method of claim 23 wherein the third agent is selecting from the group consisting of Tat-cyclin B, cyclin-A, cyclin-B, c-Mos, colchicine, and colcemid.

28. (New) The method of claim 27 wherein the third agent is Tat-cyclin B.

29. (New) The method of claim 23 wherein the keratinocyte is a human keratinocyte.